

2018 Summer Preparedness TEP & UNS Electric

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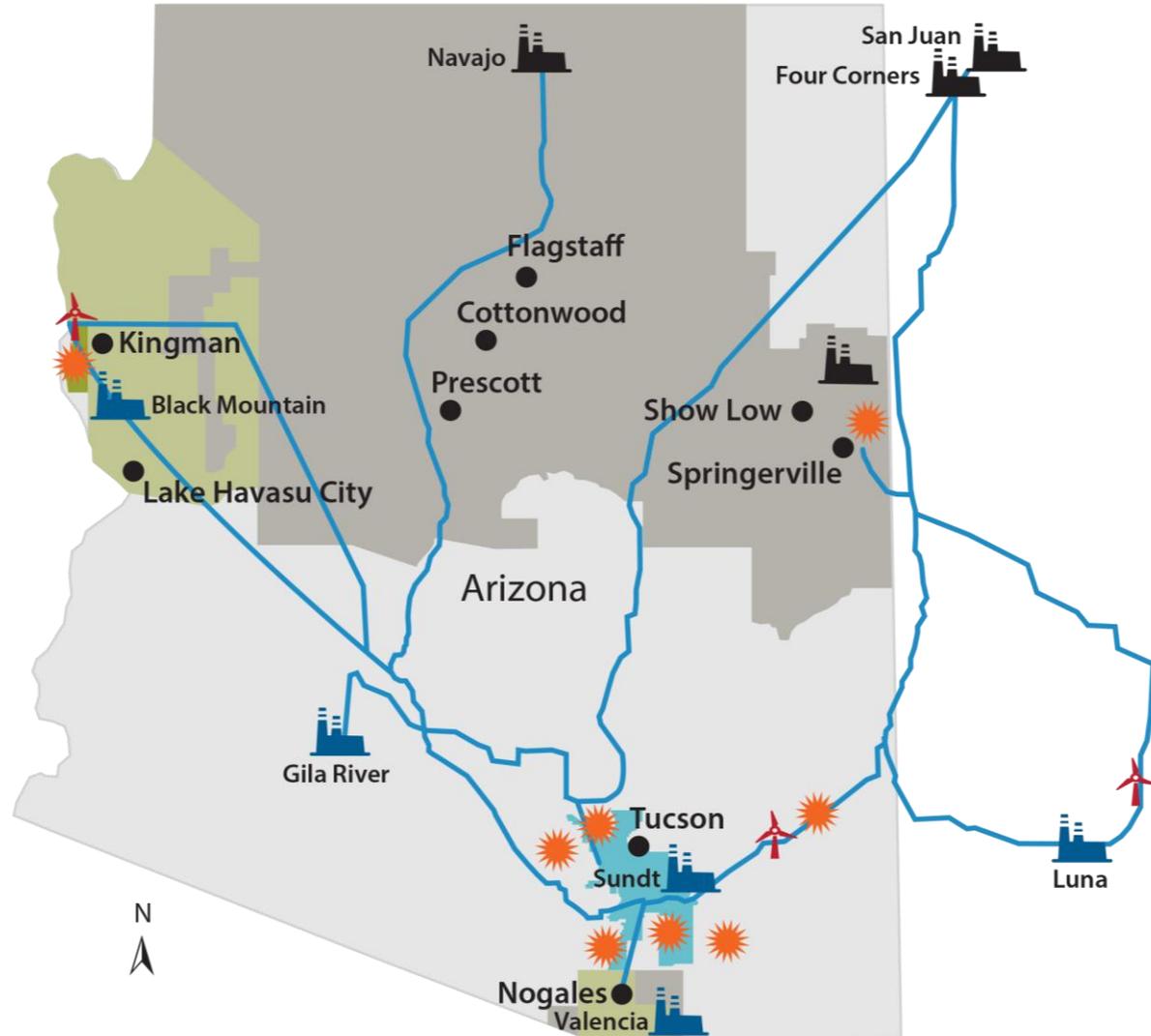
APRIL 24, 2018



Utility Service Areas

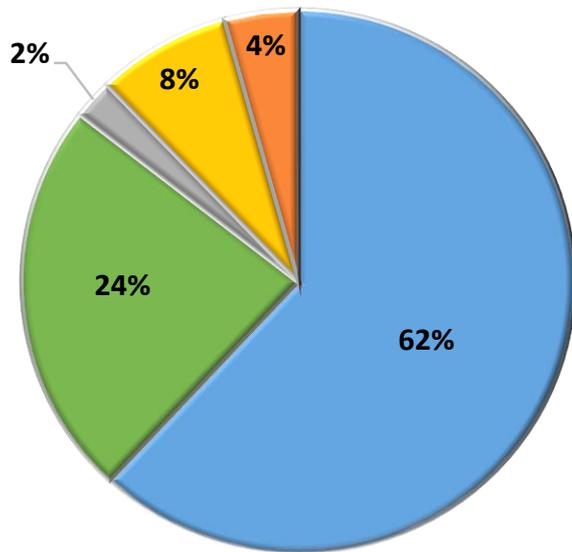
SERVICE AREAS / CUSTOMERS

-  Tucson Electric Power Service Area
-  UNS Gas Service Area
-  UNS Electric Service Area
-  UNS Gas & Electric Service Area
-  Transmission Line
-  Coal-Fired Power Plant
-  Natural Gas-Fired Power Plant
-  Community-Scale Solar Power
-  Company Offices
-  Community-Scale Wind Power



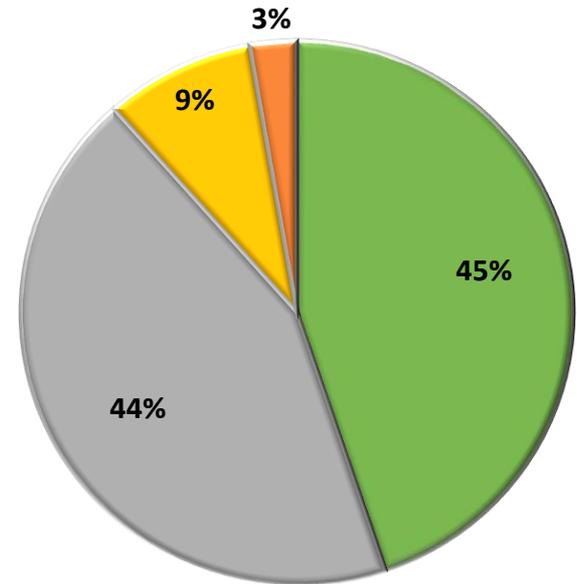
2018 Energy Mix Forecast

TEP Energy Portfolio



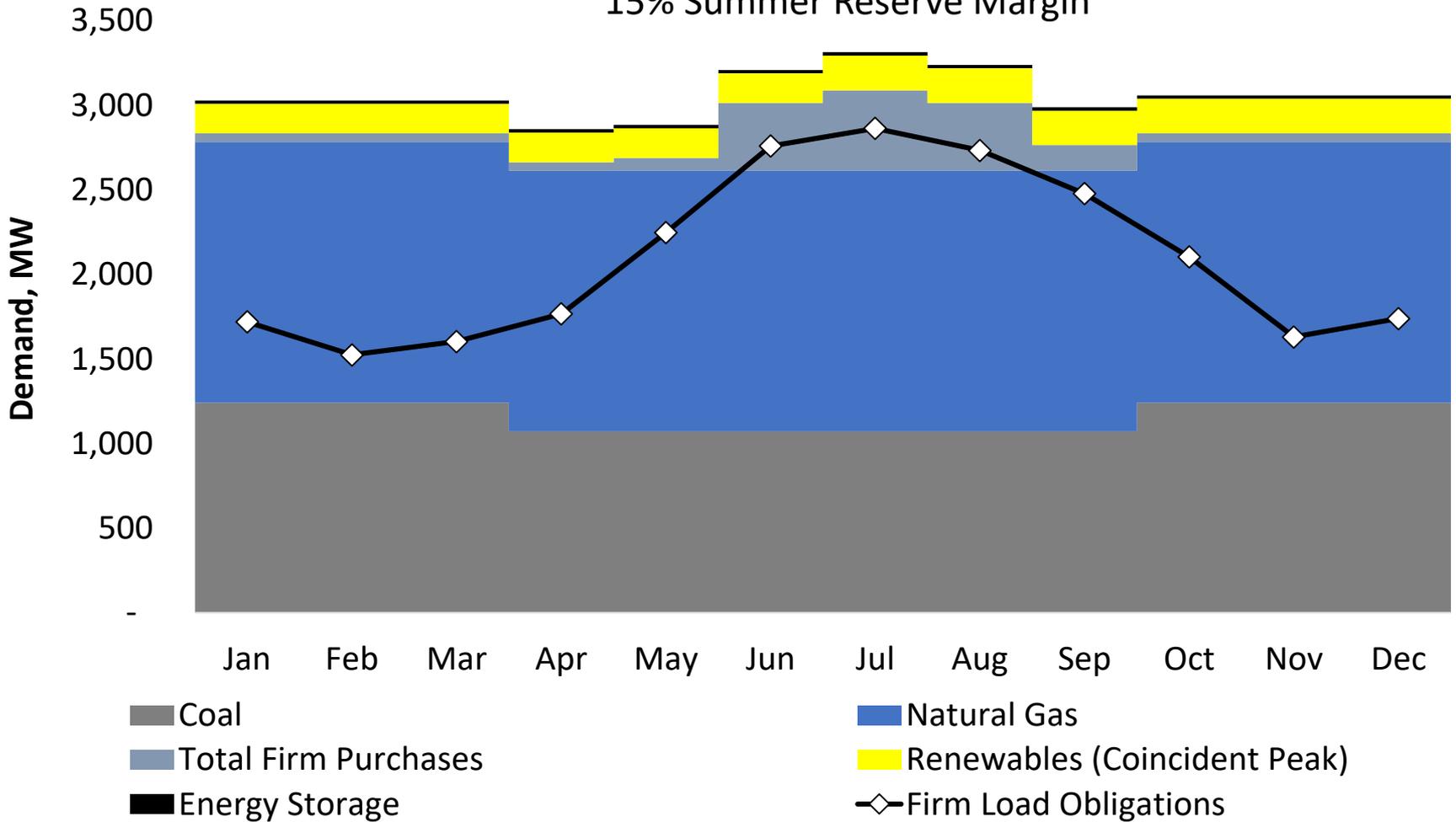
- Coal
- Natural Gas
- Market Purchases
- Utility Scale Renewables
- Distributed Generation

UNS Electric Energy Portfolio



2018 TEP & UNSE Loads and Resources

15% Summer Reserve Margin



TEP & UNS Electric Operations

Notable T&D Projects

- Transformer Capacity Replacements 237 MW
- Transmission Line Capacity Upgrades 270 MW
- Communication/Automation Upgrades



NERC Real-Time Contingency Analysis

- West Wide System Model
- Tie Open Load Shed



Outage Response

- **On-Hand Emergency Equipment (TEP and UNS Electric)**
 - Emergency Towers – 23 various sizes and configurations
 - Spare poles – 70+
 - Mobile transformers - 4
 - Spare substation transformers – 7 various capacity and voltages
- **Recent Outage in Nogales (UNS Electric)**
 - Deployed mobile transformer



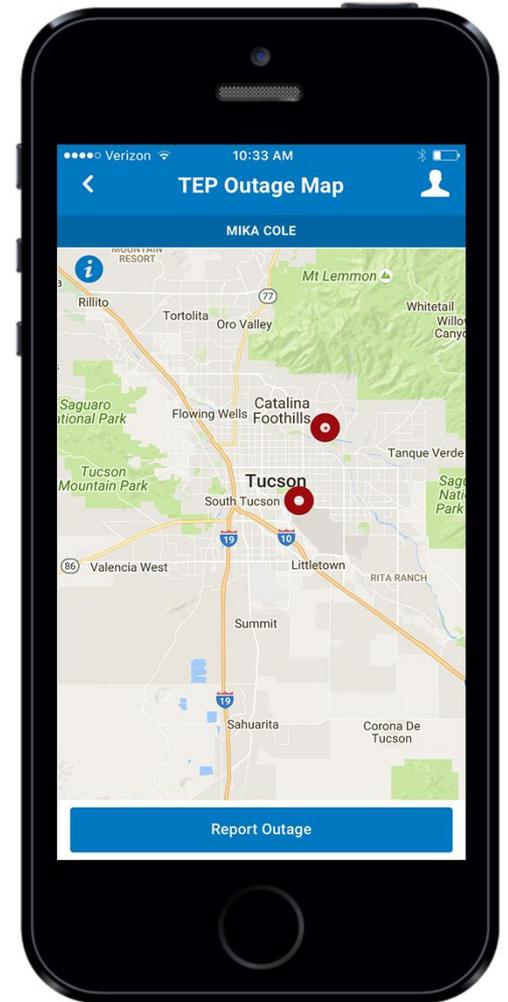
Emergency Preparation

- Regional black start drills between Balancing Authorities and the Reliability Coordinator
- Verification of TEP's Backup Control Center (BCC)
- Daily conference call between Reliability Coordinator and Balancing Authority operators
- During summer peak AZ entities anticipate holding weekly reliability call
- Weekly updates from Transmission Construction & Maintenance regarding wildfires
- Annual Storm Preparation meeting with all departments
- First Responders/Utility Threat Assessment Group quarterly meetings



Multiple Outreach Platforms

- Real-time outage map (online and mobile app)
- Automated customer notification on restoration progress
- Call center staff available 24x7
- Customer Mobile App
- Active Facebook and Twitter presence
- Redesigned websites
- Immediate customer notification
- Advance notice of scheduled curtailments



Q & A

